

## PATENT ABSTRACTS OF JAPAN

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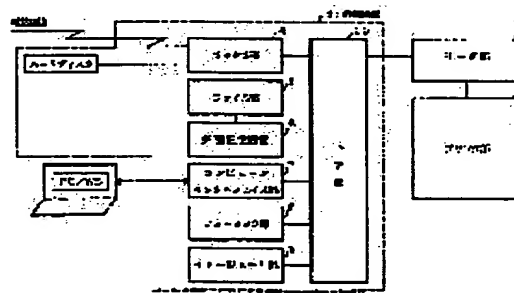
(72)Inventor : SHIMIZU YASUSHI

## (54) PICTURE INPUT/OUTPUT DEVICE

## (57)Abstract:

**PURPOSE:** To eliminate the lack of a picture and wasting of paper and to output the picture by means of an optimum paper size by executing the processing of variable magnification and rotation on the picture to be outputted based on picture attribute information and outputting the picture in the unified paper size.

**CONSTITUTION:** Picture data inputted from a reader part 1 is stored in an external storage device 6 together with picture attribute data. A file part 5 reads picture data and picture attribute data from the external storage device 6 and selects the output paper size based on picture attribute data and paper size designation information inputted from the reader part 1. The picture processings of resolution conversion and rotation are executed on picture data and picture data is converted into picture data corresponding to the paper size. The converted picture is read from the file part 5 and it is transferred to a printer part 2. Even for a file where the pictures different in size coexist, the optimum and unified paper size is selected and picture output can be obtained.



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CLAIMS

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[Claim(s)]

[Claim 1] An image input means to input an image, and the 1st storage means memorized with image attribute information by making into an image file image information inputted with this image input means, The 1st reading means which reads image information or image attribute information in the image file by which storage are recording was carried out for this 1st storage means, The variable power means which carries out variable power of the image data, and a rotation means to rotate the variable power image data from this variable power means, The 2nd storage means which carries out the sequential storage of the rotation image data from this rotation means, In the image I/O device which has the 2nd reading means which reads the stored data of this 2nd storage means, and the image output means which carries out the visible output of the data from this 2nd reading means at a sheet-like output media An image attribute information receiving means to receive the image attribute information that said image attribute information output means outputs said variable power means, It is the image I/O device which has the image variable power means which carries out variable power of the image data to predetermined manuscript size according to the image attribute information received with this image attribute information receiving means, and is characterized by said image output means having a double-sided output means to output image data to an output media by both sides.

[Claim 2] It is the image I/O device characterized by inputting by both sides with the double-sided information that said image input means is a double-sided manuscript about a double-sided manuscript in claim 1.

[Claim 3] It is the image I/O device which said 1st storage means makes image information an image file in claim 2, and is characterized by what is both memorized by making said double-sided information into said image attribute information.

[Claim 4] It is the image I/O device characterized by memorizing the information on the manuscript number of sheets of the whole image file as [ both ] said image attribute information in case said 1st storage means memorizes image information as an image file in claim 1.

[Claim 5] It is the image I/O device characterized by memorizing the direction of the image information, and the information on the sense of a manuscript as [ both ] said image attribute information in case said 1st storage means memorizes image information as an image file in claim 1.

[Claim 6] An image input means to input an image, and the 1st storage means memorized with image attribute information by making into an image file image information inputted with this image input means, The 1st reading means which reads image information or image attribute information in the image file by which storage are recording was carried out for this 1st storage means, The variable power means which carries out variable power of the image data, and a rotation means to rotate the variable power image data from this variable power means, The 2nd storage means which carries out the sequential storage of the rotation image data from this rotation means, In the image I/O device which has the 2nd reading means which reads the stored data of this 2nd storage means, and the image output means which carries out the visible output of the data from this 2nd reading means at a sheet-like output media An image attribute information receiving means to receive the image attribute information that said image attribute

information output means outputs said variable power means, The image I/O device characterized by having the image variable power means which carries out variable power of the image data to predetermined manuscript size according to the image attribute information received with this image attribute information receiving means.

[Claim 7] It is the image I/O device characterized by carrying out variable power to the predetermined manuscript size as which said variable power means was specified by the manuscript size assignment means in claims 1 or 6.

[Claim 8] It is the image I/O device characterized by carrying out variable power of all the image data according to the minimum manuscript size in the image data which corresponds based on the image attribute information that said variable power means was read with said 1st reading means in claims 1 or 6.

[Claim 9] It is the image I/O device characterized by carrying out variable power of all the image data according to the greatest manuscript size in the image data which corresponds based on the image attribute information that said variable power means was read with said 1st reading means in claims 1 or 6.

[Claim 10] It is the image I/O device characterized by choosing a thing with most the manuscript size in the image data which corresponds based on the image attribute information that said variable power means was read with said 1st reading means in claims 1 or 6, and carrying out variable power of all the image data according to the manuscript size.

[Claim 11] It is the image I/O device characterized by choosing the manuscript size of the image data outputted to the No. 1 beginning in the image data which corresponds based on the image attribute information that said variable power means was read with said 1st reading means in claims 1 or 6, and carrying out variable power of all the image data according to the manuscript size.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the image I/O device in for example, image electronic file equipment, a digital copier, facsimile, a printer, etc.

[0002]

[Description of the Prior Art] In recent years, facsimile apparatus, PDL printer equipment, and the compound digital copier that has two or more functions further used as electronic file equipment are put in practical use in the scanner part and printer part of a copying machine.

[0003] And it is the case where the above compound digital copiers are conventionally used as electronic file equipment. [ when it seems that the file in which the image data of various manuscript sizes is intermingled is made to output ] The thing to which fix manuscript size to at the time of the image entry of data, and image data is made to output by the fixed paper size, and the thing as which choose the paper size according to each manuscript size, and made it make image data output by detecting each manuscript size on the contrary are known.

[0004]

[Problem(s) to be Solved by the Invention] However, in the above equipments, if it is made to make it output by the paper size specified compulsorily when the image data of various manuscript sizes is intermingled in one file, in lack of an image etc. taking place depending on the case and not obtaining a desired output, there were troubles, such as leading to waste of a form, by producing a useless margin.

[0005] Moreover, if it is made to output by the paper size according to each manuscript size on the contrary, the trouble of being hard to arrange since each output paper size is not common will arise.

[0006] This invention loses lack of an image, and a waste of paper, and aims at offering the image I/O device which can perform an image output by the optimal paper size from a viewpoint of making file arrangement easy.

[0007]

[Means for Solving the Problem] By processing variable power, rotation, etc. suitably in the image to output based on the image attribute information on the image file to output, and outputting by the paper size which unified this, when the image data of various manuscript sizes is intermingled in a file, it becomes possible to make it output to the optimal unification paper size by one side or both sides about all the image data as which the output is demanded of this invention.

[0008] Thereby, compaction of print time amount is attained by precedence feeding of the recording paper in a recording device etc., and also in case waste of a form is held down to the minimum and stapled, a manuscript can carry out in an orderly form.

[0009]

[Example] Drawing 1 is the block diagram showing the image formation structure of a system which shows one example of this invention.

[0010] In drawing 1 , the reader section 1 is an image output unit which the image of a manuscript is read, it is the picture input device which outputs image data, and the printer

section 2 has two or more kinds of detail-paper cassettes, and outputs image data in the record paper as a visible image with a print instruction.

[0011] Moreover, it connects with the reader section 1 electrically, and an external device 3 has various kinds of functions. namely, to this external device 3 Accumulate the information from the formatter section 8 for using as a visible image the computer interface section 7 for connecting with the external storage 6 and the computer which are connected with the fax section 4, the file section 5, and the file section 5, and information from a computer, and the reader section 1, or It has the core section 10 grade which controls the image memory section 9 and each above-mentioned function for accumulating temporarily the information sent from the computer.

[0012] Drawing 2 is the sectional view showing the configuration of the reader section 1 and the printer section 2.

[0013] First, in the reader section 1, one manuscript loaded on the manuscript feeding device 101 is conveyed at a time on the manuscript base glass side 102 one by one. And if a manuscript is conveyed in the predetermined location of the glass side 102, the lamp 103 of the scanner section will light up, and the scanner unit 104 will move, and the exposure scan of the manuscript will be carried out. The reflected light of a manuscript is inputted into the CCD series section 109 (henceforth CCD) through mirrors 105, 106, and 107 and a lens 108.

[0014] Next, the picture signal inputted into the printer section 2 is changed into the lightwave signal modulated by the exposure control section 201, and irradiates a photo conductor 202. The latent image made by this exposure light on the photo conductor 202 is developed by the development counter 203. The tip and timing of the above-mentioned developed image are doubled, a transfer paper is conveyed from the imprint loading section 204 or 205, and the image by which development was carried out [ above-mentioned ] is imprinted in the imprint section 206.

[0015] After a transfer paper is fixed to the imprinted image in the fixing section 207, it is discharged by the equipment exterior from a delivery unit 208. The transfer paper outputted from the delivery unit 208 is discharged by the top bottle of a sorter when it is discharged by each bottle when the sort function is working with the sorter 220, and the sort function is not working.

[0016] Moreover, in outputting the image read one by one to both sides of one sheet of output form, once, the conveyance sense of after conveyance and a form is reversed to a delivery unit 208, and it conveys the output form to which it was fixed in the fixing section 207 in the transferred paper loading section 210 for re-feeding through the conveyance direction change member 209. And since paper will be fed from the transferred paper loading section 210 for re-feeding about a transfer paper although a manuscript image is read like the above-mentioned process if the following manuscript is prepared, the manuscript image of two sheets can be outputted to the front face of the same output paper, and a rear face after all.

[0017] Next, it connects with a reader 1 by the cable, and an external device 3 performs control of a signal, and control of each function in the core section in an external device 3.

[0018] The fax section 4 which performs fax transmission and reception in this external device 3, and the file section 5 which changes various manuscript information into an electrical signal, and is saved at a magneto-optic disk (external storage 6), The formatter section 8 which develops the code information from a computer to image information, The information from the computer interface section 7 which performs an interface with a computer, and the reader section 1 is accumulated, or the image memory section 9 for accumulating temporarily the information sent from the computer and the core section 10 grade which controls each above-mentioned function are prepared.

[0019] Drawing 3 is the block diagram showing the outline of the control system of the above-mentioned reader section 1.

[0020] This reader section 1 has the A/D-SH section 110 which performs A/D conversion and a shading compensation to the read signal of CCD109, the image-processing section 111 which inputs the image data from this A/D-SH section 110, and performs various signal processing, such as color detection and profile processing, and the laser driver 112 which generates the laser driving signal based on the image data from this image-processing section 111, and is

supplied to the printer section 2.

[0021] Moreover, between the external devices 3 mentioned above in the reader section 1, it has the interface section 113 which outputs and inputs various signals, and the image data from the external device 3 by this interface section 113 can be transmitted now to the printer section 2 through the above-mentioned image-processing section 111 and a laser driver 112.

[0022] Moreover, the control unit 115 for performing various setup to this system is formed in the reader section 1. In addition, the configuration of a control unit 115 is later mentioned by drawing 5.

[0023] And CPU114 performs control of such the reader section 1 based on the program stored in memory 116. Moreover, the storing field of various data besides the control program of CPU114 etc. is established in memory 116.

[0024] Drawing 4 is the block diagram showing the outline of the control system of the above-mentioned core section 10.

[0025] Like illustration, it has the fax section 4 mentioned above, the file section 5, the computer interface section 7, the formatter section 8, the interface section 120 including the function of the selector which connects image memory section 9 grade, the data-processing section 121 that performs various processings about the inputted data, such as variable power and rotation, and the interface section 122 which output and input various data between the reader sections 1 in this core section 10.

[0026] And CPU123 performs control of such the core section 10 based on the program stored in memory 124. Moreover, the storing field of various data besides the control program of CPU123 etc. is established in memory 124.

[0027] Drawing 5 is the block diagram showing the configuration of the file section 5.

[0028] This file section 5 has the interface section 130 for exchanging data between the core sections 10, CPU131 which performs control of this file section 5 whole, the variable power of image data, and the variable power / rotation circuit 132 to rotate, CODEC133 which performs coding and a decryption of image data, the memory 134 used for these data processing etc., and the SCSI controller 135 which controls the SCSI interface to the above-mentioned external storage 6. In addition, in the following explanation, memory 134 shall have accessible memory section A-D according to an individual.

[0029] Next, output actuation of the image file which is the description part of this invention is explained.

[0030] In this example, drawing 6 is the explanatory view showing signs that choose the paper size which was common to all those image data, and was suitable, and it outputs by both sides, when the image data of various manuscript sizes is intermingled in a file.

[0031] In addition, the case where a means to input an image is the magneto-optic disk set in the above-mentioned external storage 6 is explained to an example here.

[0032] First, the image data beforehand inputted into the magneto-optic disk of external storage 6 from the reader section 1 shall be memorized with the detailed image attribute data of each image data.

[0033] This image attribute data is the number of pixels of a main scanning direction, the number of pixels of the direction of vertical scanning, the resolution of a main scanning direction, the resolution of the direction of vertical scanning, the number of bits per sample, manuscript size, etc.

[0034] And CPU131 of the file section 5 can obtain these image attribute data about all the image data in external storage 6 by performing access external storage 6 and predetermined.

[0035] Moreover, CPU131 chooses an output paper size based on the paper-size assignment information that it was inputted through the core section 10 from the image attribute data of all the images with which an output is demanded, and a control unit 115.

[0036] Furthermore, CPU131 transmits to reception the information encoded from external storage 6 through the SCSI controller 135, and transmits the encoded information to the memory section C of memory 134. And after a transfer of the encoded information to this memory section C is completed, CPU131 connects the memory section C and other memory sections D to CODEC133. Thereby, after CODEC133 reads encoded information in the memory

section C and carries out a sequential decryption, it is transmitted to the memory section D.

[0037] Next, the above-mentioned memory section D and other memory sections A are connected to variable power / rotation circuit 132, under the DMA control by the DMA controller which is not illustrated, the contents of the memory section D are reduced, it rotates, and the image changed into the predetermined area of the memory section A is transmitted.

[0038] In addition, CPU131 shall direct to perform rotation processing if needed with conversion to the number of the direction pixels of X of each image and the number of the direction pixels of Y which were reduced according to the selected paper size from the image attribute data (a pixel number, resolution, manuscript size, sense of a manuscript, etc.) which accompanies the image data read in external storage 6 in variable power / rotation circuit 132 at this time.

[0039] Moreover, when the longitudinal directions and the directions of a short hand of a manuscript are a conversion front and after conversion and become reverse, what is necessary is just made to perform rotation processing.

[0040] Thus, an image is arranged by control of CPU131 in the predetermined area on the memory section A.

[0041] Next, also about the image after the 2nd sheet, except that the area transmitted on the memory section A after conversion differs, it is processed similarly and is completely arranged.

[0042] Like the following, image transformation is carried out and predetermined image number of sheets is arranged so that all may become the same manuscript size at the memory section A.

[0043] Next, CPU131 communicates with CPU123 of the core section 10, passes along the core section 10 from the memory section A, and performs a setup for carrying out the printed output of the image to the printer section 2 by both sides. Hereafter, the double-sided output actuation mentioned above performs the printed output of an image.

[0044] Next, drawing 7 and drawing 8 are flow charts which show actuation by whole this example. Hereafter, it explains using this drawing 7, drawing 8, and above-mentioned drawing 6.

[0045] First, in order to capture an image to external storage 6 in S1101, it inputs into the file section 5 in the reader section 1 by considering a series of image data as a file.

[0046] Next, in S1102, the image data 1202 which is the file content incorporated by S1101 is memorized to external storage 6.

[0047] And a user is made to determine whether the image data 1202 and 1203 from which the manuscript size in the file memorized to external storage 6 by S1102 differs, respectively is made to output by the unified paper size 1201 in S1103.

[0048] If a user does not desire to make it output by the unified paper size, other processings A will be performed in S1114. In addition, this processing A is the processing which outputs the image data in a file by each paper size.

[0049] Moreover, when a user desires to make it output by the unified paper size, a user is asked for a judgment for what kind of paper size is made to choose by S1104, S1105, S1106, and S1107, when unifying a paper size, respectively.

[0050] S1104 is a judgment whether a user chooses a paper size with the paper-size assignment means of a control unit 115 here, and S1105 is a judgment that it is whether it is choosing the manuscript size minimum by the image data in the file as which an output's is required. Moreover, it is a judgment that S1106 is as it is choosing the manuscript size greatest by the image data in the file as which an output's is required, and S1107 is a judgment whether to choose a paper size from which the number with the manuscript size corresponding to the paper size to choose of image data serves as max among a file.

[0051] And in the above judgment of S1104-S1107, in choosing the paper size blamed for at least one of the judgment of the, it processes S1109 next.

[0052] Moreover, in the judgment of S1104-S1107, when neither of the paper sizes is chosen, the paper size of the image data of the beginning in a file is chosen by S1108, and processing of S1109 is performed after this.

[0053] Next, the image data memorized by S1102 is read in the external storage 6 connected to the file section 5 in the file section 5 S1109. And in S1110, according to the paper size chosen by S1104-S1107, or the paper size specified by S1108, image processings, such as rotation, are



performed to the image data read by S1109 in the file section 5 resolution conversion and if needed, and it changes into the image data corresponding to a paper size 1201.

[0054] Next, in S1111, the image changed by S1110 is memorized in the memory of the file section 5. And the image after the conversion memorized by these S1111 is read from the memory of the file section 5 by S1112, and is transmitted to the printer section 2.

[0055] In the printer section 2, the image data transmitted by S1112 is received, and a double-sided output is carried out in the printer section 2 S1113.

[0056] Since variable power of each image and rotation are performed, the optimal unification paper size can be chosen and an image output can be performed even if it is the file in which the image with which sizes differ as mentioned above was intermingled, lack of an image and a waste of paper can be lost and file arrangement can be made easy.

[0057] In addition, although the above example [ 1st ] explained the case where a magneto-optic disk was used as an input means of an image, it is applicable similarly about the other input means.

[0058] For example, when the image inputted from the reader section 1 is a thing containing a double-sided manuscript as the 2nd example of this invention, in case this image data is memorized to external storage 6, the information that it is a double-sided manuscript is added to image attribute information, and is both memorized.

[0059] Although subsequent processing is the same as the 1st example of the above described almost The image data which is a double-sided manuscript when performing the processing Since it can always distinguish by getting to know the image attribute information, it sets during the processing. The image data which is a double-sided manuscript is always treated as both sides, and also in case it is outputted by the paper size into which the file was unified, about the double-sided manuscript into which the output obtained in the printer section 2 was inputted by both sides from the reader section 1, the relation of the front face and rear face corresponds, without collapsing.

[0060] moreover, the number of sheets of the manuscript which be the contents of the file expect an output although the above example [ 2nd ] described the case where the image data of a double-sided manuscript be inputted in the reader section 1 -- odd sheets -- it be -- in addition -- and when outputting a manuscript to a reverse order, processing similarly be possible by adding that to image attribute information and memorizing it.

[0061] That is, in case image data is memorized to external storage 6 as an image file, the manuscript number of sheets of the whole image file is memorized with image attribute information.

[0062] And although it is the same as the 1st example of the above described almost, CPU131 communicates with CPU123 of the core section 10, and subsequent processing passes along the core section 10 from the memory section A, and in case it performs a setup which prints an image on the printer section 2, even when the number of manuscripts is odd in transmitting the information on manuscript number of sheets, it can respond.

[0063] Moreover, in each above example, although the case where the double-sided output of the image data was carried out was explained, it may be made to carry out an one side output as the 4th example of this invention.

[0064] Drawing 9 is the explanatory view showing the situation in this case. As well as the case of the 1st example of the above when the image data 1302, 1303, and 1304 of various manuscript sizes is intermingled in a file, the form 1301 of a paper size which was common to all those image data, and was suitable is chosen, and the one side output of each image data 1302, 1303, and 1304 is carried out on the front face of a form 1301.

[0065] In addition, the whole actuation accompanies the flow chart shown by above-mentioned drawing 7 and drawing 8, and explanation is omitted.

[0066] In the 1st example of the above, there is an advantage which can save a form with outputting to both sides, and it becomes a convenient system for the user who desires an one side file with outputting to one side in this 4th example.

[0067] In addition, it is also possible to enable it to choose the above double-sided outputs and an one side output, and it is also still more possible to enable it to set up an output method by

liking of a user also about the double-sided manuscript explained in the 2nd example of the above. For example, if the read manuscript is an one side manuscript, when it outputs on one side at the time of the output of a file and a double-sided manuscript is included, a double-sided output is carried out about the manuscript.

[0068] Furthermore, each example explained above does not show one example of this invention, and this invention is not limited to these. That is, about the concrete approach of each above-mentioned function in the image output method in connection with this invention, many things can be adopted besides the approach mentioned above.

[0069]

[Effect of the Invention] As explained above, even if the image data of various manuscript sizes is intermingled in a file according to this invention By it becoming possible to make it output by the unified paper size of which all the image data as which an output is required is required, consequently carrying out precedence feeding etc. Also in case it becomes short, and print time amount holds down waste of a form to the minimum and staples it, it is effective in the ability of a manuscript to carry out in an orderly form.

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TECHNICAL FIELD

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[Industrial Application] This invention relates to the image I/O device in for example, image electronic file equipment, a digital copier, facsimile, a printer, etc.

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PRIOR ART

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[Description of the Prior Art] In recent years, facsimile apparatus, PDL printer equipment, and the compound digital copier that has two or more functions further used as electronic file equipment are put in practical use in the scanner part and printer part of a copying machine. [0003] And it is the case where the above compound digital copiers are conventionally used as electronic file equipment. [ when it seems that the file in which the image data of various manuscript sizes is intermingled is made to output ] The thing to which fix manuscript size to at the time of the image entry of data, and image data is made to output by the fixed paper size, and the thing as which choose the paper size according to each manuscript size, and made it make image data output by detecting each manuscript size on the contrary are known.

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] As explained above, even if the image data of various manuscript sizes is intermingled in a file according to this invention By it becoming possible to make it output by the unified paper size of which all the image data as which an output is required is required, consequently carrying out precedence feeding etc. Also in case it becomes short, and print time amount holds down waste of a form to the minimum and staples it, it is effective in the ability of a manuscript to carry out in an orderly form.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] However, in the above equipments, if it is made to make it output by the paper size specified compulsorily when the image data of various manuscript sizes is intermingled in one file, in lack of an image etc. taking place depending on the case and not obtaining a desired output, there were troubles, such as leading to waste of a form, by producing a useless margin.

[0005] Moreover, if it is made to output by the paper size according to each manuscript size on the contrary, the trouble of being hard to arrange since each output paper size is not common will arise.

[0006] This invention loses lack of an image, and a waste of paper, and aims at offering the image I/O device which can perform an image output by the optimal paper size from a viewpoint of making file arrangement easy.

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MEANS

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[Means for Solving the Problem] By processing variable power, rotation, etc. suitably in the image to output based on the image attribute information on the image file to output, and outputting by the paper size which unified this, when the image data of various manuscript sizes is intermingled in a file, it becomes possible to make it output to the optimal unification paper size by one side or both sides about all the image data as which the output is demanded of this invention.

[0008] Thereby, compaction of print time amount is attained by precedence feeding of the recording paper in a recording device etc., and also in case waste of a form is held down to the minimum and stapled, a manuscript can carry out in an orderly form.

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EXAMPLE

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[Example] Drawing 1 is the block diagram showing the image formation structure of a system which shows one example of this invention.

[0010] In drawing 1, the reader section 1 is an image output unit which the image of a manuscript is read, it is the picture input device which outputs image data, and the printer section 2 has two or more kinds of detail-paper cassettes, and outputs image data in the record paper as a visible image with a print instruction.

[0011] Moreover, it connects with the reader section 1 electrically, and an external device 3 has various kinds of functions. namely, to this external device 3 Accumulate the information from the formatter section 8 for using as a visible image the computer interface section 7 for connecting with the external storage 6 and the computer which are connected with the fax section 4, the file section 5, and the file section 5, and information from a computer, and the reader section 1, or It has the core section 10 grade which controls the image memory section 9 and each above-mentioned function for accumulating temporarily the information sent from the computer.

[0012] Drawing 2 is the sectional view showing the configuration of the reader section 1 and the printer section 2.

[0013] First, in the reader section 1, one manuscript loaded on the manuscript feeding device 101 is conveyed at a time on the manuscript base glass side 102 one by one. And if a manuscript is conveyed in the predetermined location of the glass side 102, the lamp 103 of the scanner section will light up, and the scanner unit 104 will move, and the exposure scan of the manuscript will be carried out. The reflected light of a manuscript is inputted into the CCD series section 109 (henceforth CCD) through mirrors 105, 106, and 107 and a lens 108.

[0014] Next, the picture signal inputted into the printer section 2 is changed into the lightwave signal modulated by the exposure control section 201, and irradiates a photo conductor 202. The latent image made by this exposure light on the photo conductor 202 is developed by the development counter 203. The tip and timing of the above-mentioned developed image are doubled, a transfer paper is conveyed from the imprint loading section 204 or 205, and the image by which development was carried out [ above-mentioned ] is imprinted in the imprint section 206.

[0015] After a transfer paper is fixed to the imprinted image in the fixing section 207, it is discharged by the equipment exterior from a delivery unit 208. The transfer paper outputted from the delivery unit 208 is discharged by the top bottle of a sorter when it is discharged by each bottle when the sort function is working with the sorter 220, and the sort function is not working.

[0016] Moreover, in outputting the image read one by one to both sides of one sheet of output form, once, the conveyance sense of after conveyance and a form is reversed to a delivery unit 208, and it conveys the output form to which it was fixed in the fixing section 207 in the transferred paper loading section 210 for re-feeding through the conveyance direction change member 209. And since paper will be fed from the transferred paper loading section 210 for re-feeding about a transfer paper although a manuscript image is read like the above-mentioned process if the following manuscript is prepared, the manuscript image of two sheets can be outputted to the front face of the same output paper, and a rear face after all.



[0017] Next, it connects with a reader 1 by the cable, and an external device 3 performs control of a signal, and control of each function in the core section in an external device 3.

[0018] The fax section 4 which performs fax transmission and reception in this external device 3, and the file section 5 which changes various manuscript information into an electrical signal, and is saved at a magneto-optic disk (external storage 6), The formatter section 8 which develops the code information from a computer to image information, The information from the computer interface section 7 which performs an interface with a computer, and the reader section 1 is accumulated, or the image memory section 9 for accumulating temporarily the information sent from the computer and the core section 10 grade which controls each above-mentioned function are prepared.

[0019] Drawing 3 is the block diagram showing the outline of the control system of the above-mentioned reader section 1.

[0020] This reader section 1 has the A/D-SH section 110 which performs A/D conversion and a shading compensation to the read signal of CCD109, the image-processing section 111 which inputs the image data from this A/D-SH section 110, and performs various signal processing, such as color detection and profile processing, and the laser driver 112 which generates the laser driving signal based on the image data from this image-processing section 111, and is supplied to the printer section 2.

[0021] Moreover, between the external devices 3 mentioned above in the reader section 1, it has the interface section 113 which outputs and inputs various signals, and the image data from the external device 3 by this interface section 113 can be transmitted now to the printer section 2 through the above-mentioned image-processing section 111 and a laser driver 112.

[0022] Moreover, the control unit 115 for performing various setup to this system is formed in the reader section 1. In addition, the configuration of a control unit 115 is later mentioned by drawing 5.

[0023] And CPU114 performs control of such the reader section 1 based on the program stored in memory 116. Moreover, the storing field of various data besides the control program of CPU114 etc. is established in memory 116.

[0024] Drawing 4 is the block diagram showing the outline of the control system of the above-mentioned core section 10.

[0025] Like illustration, it has the fax section 4 mentioned above, the file section 5, the computer interface section 7, the formatter section 8, the interface section 120 including the function of the selector which connects image memory section 9 grade, the data-processing section 121 that performs various processings about the inputted data, such as variable power and rotation, and the interface section 122 which output and input various data between the reader sections 1 in this core section 10.

[0026] And CPU123 performs control of such the core section 10 based on the program stored in memory 124. Moreover, the storing field of various data besides the control program of CPU123 etc. is established in memory 124.

[0027] Drawing 5 is the block diagram showing the configuration of the file section 5.

[0028] This file section 5 has the interface section 130 for exchanging data between the core sections 10, CPU131 which performs control of this file section 5 whole, the variable power of image data, and the variable power / rotation circuit 132 to rotate, CODEC133 which performs coding and a decryption of image data, the memory 134 used for these data processing etc., and the SCSI controller 135 which controls the SCSI interface to the above-mentioned external storage 6. In addition, in the following explanation, memory 134 shall have accessible memory section A-D according to an individual.

[0029] Next, output actuation of the image file which is the description part of this invention is explained.

[0030] In this example, drawing 6 is the explanatory view showing signs that choose the paper size which was common to all those image data, and was suitable, and it outputs by both sides, when the image data of various manuscript sizes is intermingled in a file.

[0031] In addition, the case where a means to input an image is the magneto-optic disk set in the above-mentioned external storage 6 is explained to an example here.

[0032] First, the image data beforehand inputted into the magneto-optic disk of external storage 6 from the reader section 1 shall be memorized with the detailed image attribute data of each image data.

[0033] This image attribute data is the number of pixels of a main scanning direction, the number of pixels of the direction of vertical scanning, the resolution of a main scanning direction, the resolution of the direction of vertical scanning, the number of bits per sample, manuscript size, etc.

[0034] And CPU131 of the file section 5 can obtain these image attribute data about all the image data in external storage 6 by performing access external storage 6 and predetermined.

[0035] Moreover, CPU131 chooses an output paper size based on the paper-size assignment information that it was inputted through the core section 10 from the image attribute data of all the images with which an output is demanded, and a control unit 115.

[0036] Furthermore, CPU131 transmits to reception the information encoded from external storage 6 through the SCSI controller 135, and transmits the encoded information to the memory section C of memory 134. And after a transfer of the encoded information to this memory section C is completed, CPU131 connects the memory section C and other memory sections D to CODEC133. Thereby, after CODEC133 reads encoded information in the memory section C and carries out a sequential decryption, it is transmitted to the memory section D.

[0037] Next, the above-mentioned memory section D and other memory sections A are connected to variable power / rotation circuit 132, under the DMA control by the DMA controller which is not illustrated, the contents of the memory section D are reduced, it rotates, and the image changed into the predetermined area of the memory section A is transmitted.

[0038] In addition, CPU131 shall direct to perform rotation processing if needed with conversion to the number of the direction pixels of X of each image and the number of the direction pixels of Y which were reduced according to the selected paper size from the image attribute data (a pixel number, resolution, manuscript size, sense of a manuscript, etc.) which accompanies the image data read in external storage 6 in variable power / rotation circuit 132 at this time.

[0039] Moreover, when the longitudinal directions and the directions of a short hand of a manuscript are a conversion front and after conversion and become reverse, what is necessary is just made to perform rotation processing.

[0040] Thus, an image is arranged by control of CPU131 in the predetermined area on the memory section A.

[0041] Next, also about the image after the 2nd sheet, except that the area transmitted on the memory section A after conversion differs, it is processed similarly and is completely arranged.

[0042] Like the following, image transformation is carried out and predetermined image number of sheets is arranged so that all may become the same manuscript size at the memory section A.

[0043] Next, CPU131 communicates with CPU123 of the core section 10, passes along the core section 10 from the memory section A, and performs a setup for carrying out the printed output of the image to the printer section 2 by both sides. Hereafter, the double-sided output actuation mentioned above performs the printed output of an image.

[0044] Next, drawing 7 and drawing 8 are flow charts which show actuation by whole this example. Hereafter, it explains using this drawing 7, drawing 8, and above-mentioned drawing 6.

[0045] First, in order to capture an image to external storage 6 in S1101, it inputs into the file section 5 in the reader section 1 by considering a series of image data as a file.

[0046] Next, in S1102, the image data 1202 which is the file content incorporated by S1101 is memorized to external storage 6.

[0047] And a user is made to determine whether the image data 1202 and 1203 from which the manuscript size in the file memorized to external storage 6 by S1102 differs, respectively is made to output by the unified paper size 1201 in S1103.

[0048] If a user does not desire to make it output by the unified paper size, other processings A will be performed in S1114. In addition, this processing A is the processing which outputs the image data in a file by each paper size.

[0049] Moreover, when a user desires to make it output by the unified paper size, a user is asked

for a judgment for what kind of paper size is made to choose by S1104, S1105, S1106, and S1107, when unifying a paper size, respectively.

[0050] S1104 is a judgment whether a user chooses a paper size with the paper-size assignment means of a control unit 115 here, and S1105 is a judgment that it is whether it is choosing the manuscript size minimum by the image data in the file as which an output's is required. Moreover, it is a judgment that S1106 is as it is choosing the manuscript size greatest by the image data in the file as which an output's is required, and S1107 is a judgment whether to choose a paper size from which the number with the manuscript size corresponding to the paper size to choose of image data serves as max among a file.

[0051] And in the above judgment of S1104-S1107, in choosing the paper size blamed for at least one of the judgment of the, it processes S1109 next.

[0052] Moreover, in the judgment of S1104-S1107, when neither of the paper sizes is chosen, the paper size of the image data of the beginning in a file is chosen by S1108, and processing of S1109 is performed after this.

[0053] Next, the image data memorized by S1102 is read in the external storage 6 connected to the file section 5 in the file section 5 S1109. And in S1110, according to the paper size chosen by S1104-S1107, or the paper size specified by S1108, image processings, such as rotation, are performed to the image data read by S1109 in the file section 5 resolution conversion and if needed, and it changes into the image data corresponding to a paper size 1201.

[0054] Next, in S1111, the image changed by S1110 is memorized in the memory of the file section 5. And the image after the conversion memorized by these S1111 is read from the memory of the file section 5 by S1112, and is transmitted to the printer section 2.

[0055] In the printer section 2, the image data transmitted by S1112 is received, and a double-sided output is carried out in the printer section 2 S1113.

[0056] Since variable power of each image and rotation are performed, the optimal unification paper size can be chosen and an image output can be performed even if it is the file in which the image with which sizes differ as mentioned above was intermingled, lack of an image and a waste of paper can be lost and file arrangement can be made easy.

[0057] In addition, although the above example [ 1st ] explained the case where a magneto-optic disk was used as an input means of an image, it is applicable similarly about the other input means.

[0058] For example, when the image inputted from the reader section 1 is a thing containing a double-sided manuscript as the 2nd example of this invention, in case this image data is memorized to external storage 6, the information that it is a double-sided manuscript is added to image attribute information, and is both memorized.

[0059] Although subsequent processing is the same as the 1st example of the above described almost The image data which is a double-sided manuscript when performing the processing Since it can always distinguish by getting to know the image attribute information, it sets during the processing. The image data which is a double-sided manuscript is always treated as both sides, and also in case it is outputted by the paper size into which the file was unified, about the double-sided manuscript into which the output obtained in the printer section 2 was inputted by both sides from the reader section 1, the relation of the front face and rear face corresponds, without collapsing.

[0060] moreover, the number of sheets of the manuscript which be the contents of the file expect an output although the above example [ 2nd ] described the case where the image data of a double-sided manuscript be inputted in the reader section 1 -- odd sheets -- it be -- in addition -- and when outputting a manuscript to a reverse order, processing similarly be possible by adding that to image attribute information and memorizing it.

[0061] That is, in case image data is memorized to external storage 6 as an image file, the manuscript number of sheets of the whole image file is memorized with image attribute information.

[0062] And although it is the same as the 1st example of the above described almost, CPU131 communicates with CPU123 of the core section 10, and subsequent processing passes along the core section 10 from the memory section A, and in case it performs a setup which prints an

image on the printer section 2, even when the number of manuscripts is odd in transmitting the information on manuscript number of sheets, it can respond.

[0063] Moreover, in each above example, although the case where the double-sided output of the image data was carried out was explained, it may be made to carry out an one side output as the 4th example of this invention.

[0064] Drawing 9 is the explanatory view showing the situation in this case. As well as the case of the 1st example of the above when the image data 1302, 1303, and 1304 of various manuscript sizes is intermingled in a file, the form 1301 of a paper size which was common to all those image data, and was suitable is chosen, and the one side output of each image data 1302, 1303, and 1304 is carried out on the front face of a form 1301.

[0065] In addition, the whole actuation accompanies the flow chart shown by above-mentioned drawing 7 and drawing 8 , and explanation is omitted.

[0066] In the 1st example of the above, there is an advantage which can save a form with outputting to both sides, and it becomes a convenient system for the user who desires an one side file with outputting to one side in this 4th example.

[0067] In addition, it is also possible to enable it to choose the above double-sided outputs and an one side output, and it is also still more possible to enable it to set up an output method by liking of a user also about the double-sided manuscript explained in the 2nd example of the above. For example, if the read manuscript is an one side manuscript, when it outputs on one side at the time of the output of a file and a double-sided manuscript is included, a double-sided output is carried out about the manuscript.

[0068] Furthermore, each example explained above does not show one example of this invention, and this invention is not limited to these. That is, about the concrete approach of each above-mentioned function in the image output method in connection with this invention, many things can be adopted besides the approach mentioned above.

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[Translation done.]

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2.\*\*\*\* shows the word which can not be translated.

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the control system of the compound equipment in one example of this invention.

[Drawing 2] It is the sectional view showing the structure of the compound equipment in the above-mentioned example.

[Drawing 3] It is the block diagram showing the control system of the reader section in the above-mentioned example.

[Drawing 4] It is the block diagram showing the control system of the core section in the above-mentioned example.

[Drawing 5] It is the block diagram showing the control system of the file section in the above-mentioned example.

[Drawing 6] It is the explanatory view showing the situation of the image output in the 1st example of this invention.

[Drawing 7] It is the flow chart which shows the actuation in the 1st example of the above.

[Drawing 8] It is the flow chart which shows the actuation in the 1st example of the above.

[Drawing 9] It is the explanatory view showing the situation of the image output in the 4th example of this invention.

### [Description of Notations]

- 1 -- Reader section,
- 2 -- Printer section,
- 3 -- External device,
- 4 -- Fax section,
- 5 -- File section,
- 6 -- External storage,
- 7 -- Computer interface section,
- 8 -- Formatter section,
- 9 -- Image memory section,
- 10 -- Core section.

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[Translation done.]

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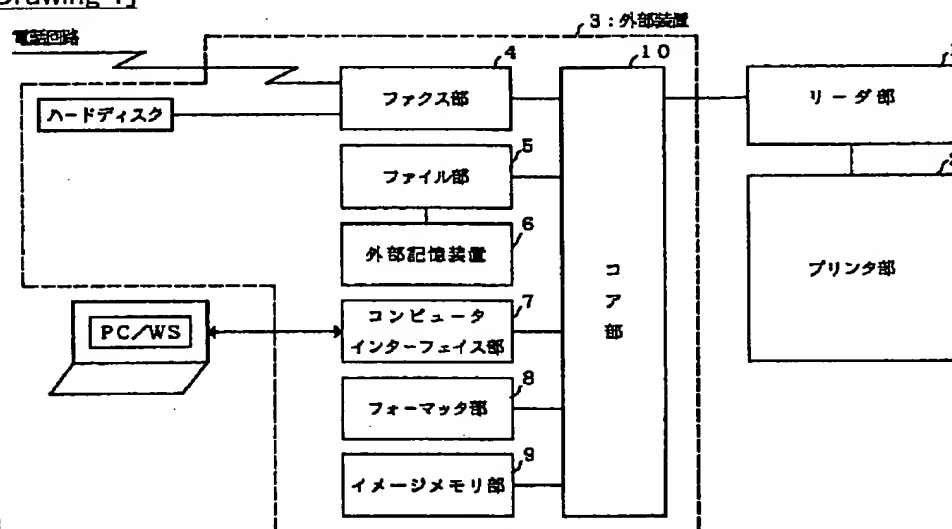
1.This document has been translated by computer. So the translation may not reflect the original precisely.

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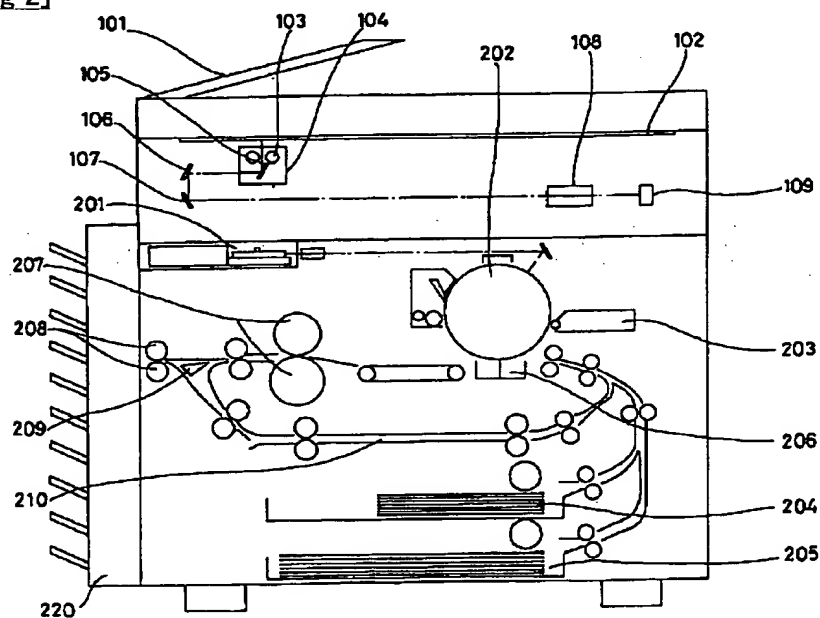
## DRAWINGS

[Drawing 1]



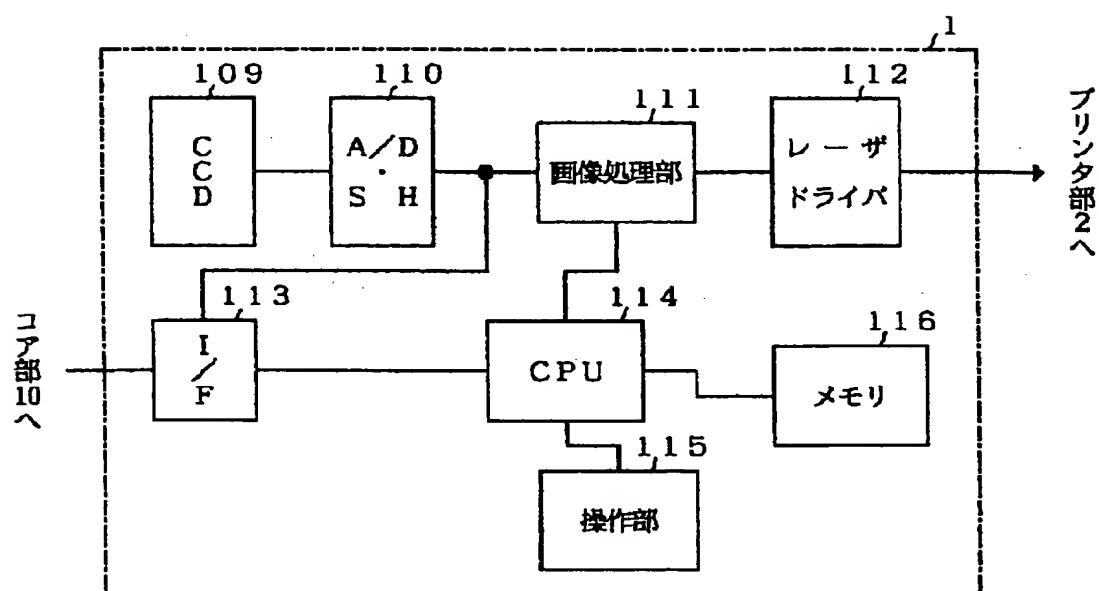
K3172

[Drawing 2]

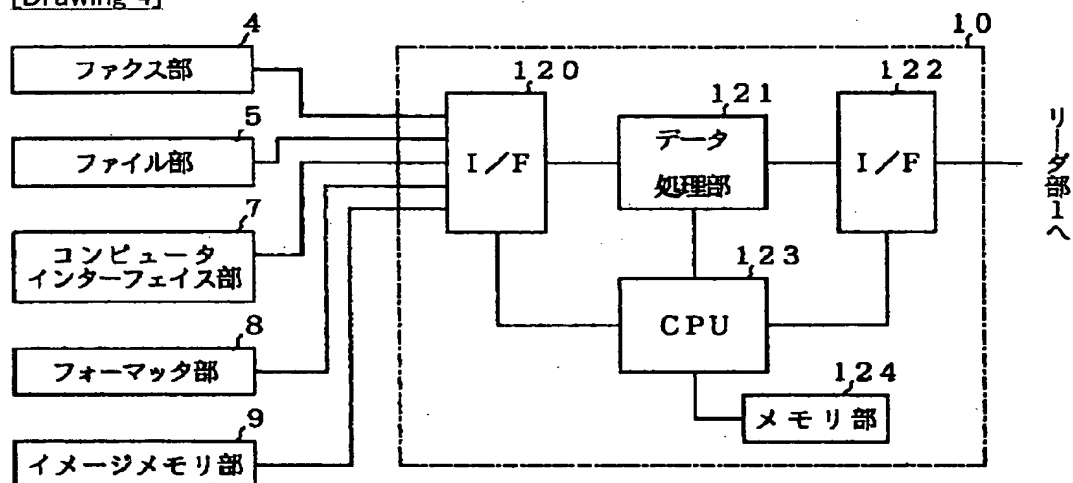


K3172

[Drawing 3]

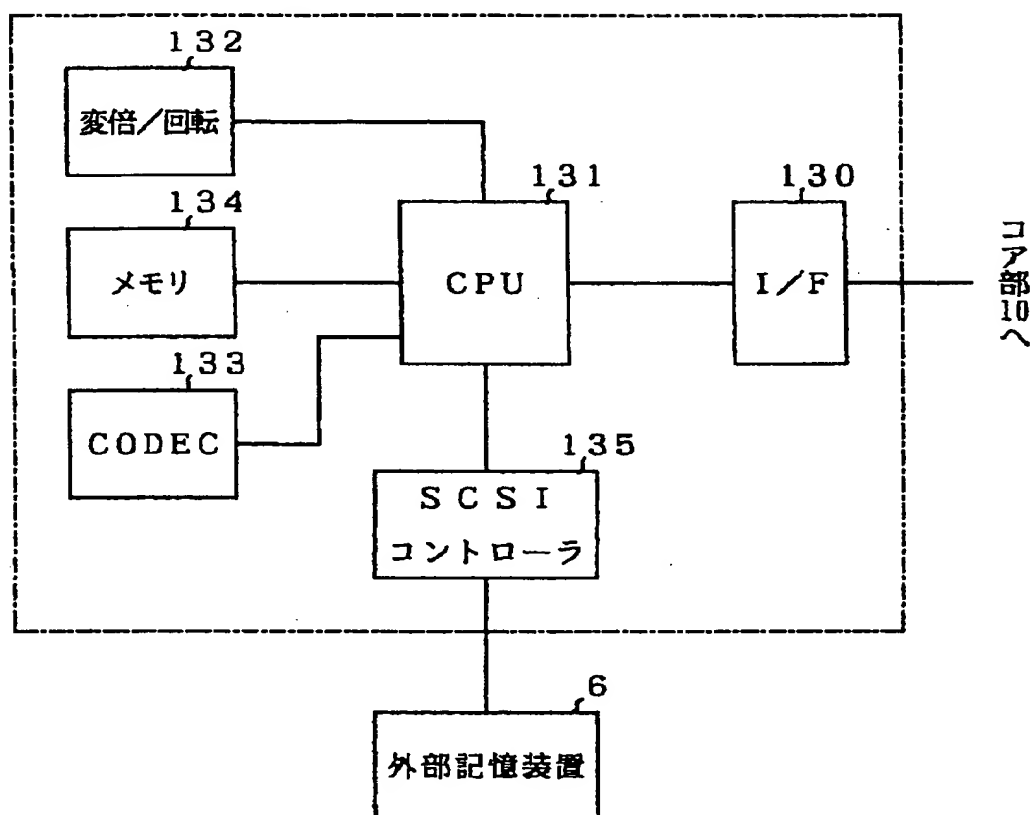


[Drawing 4]



K3172

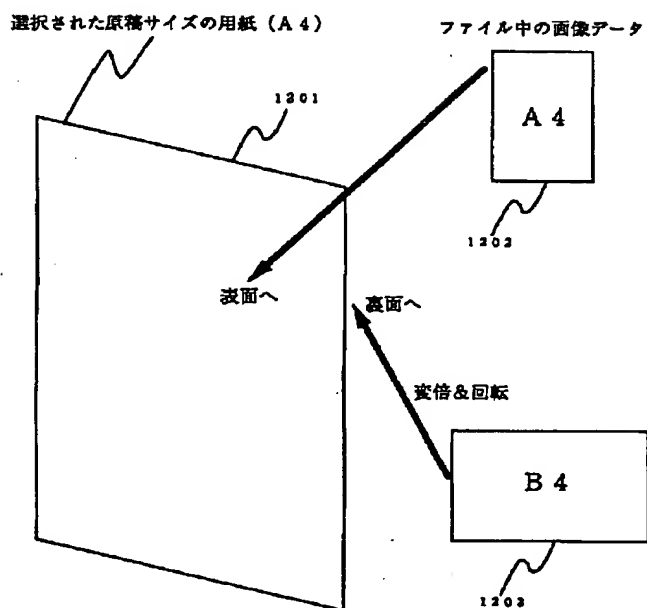
[Drawing 5]



K3172

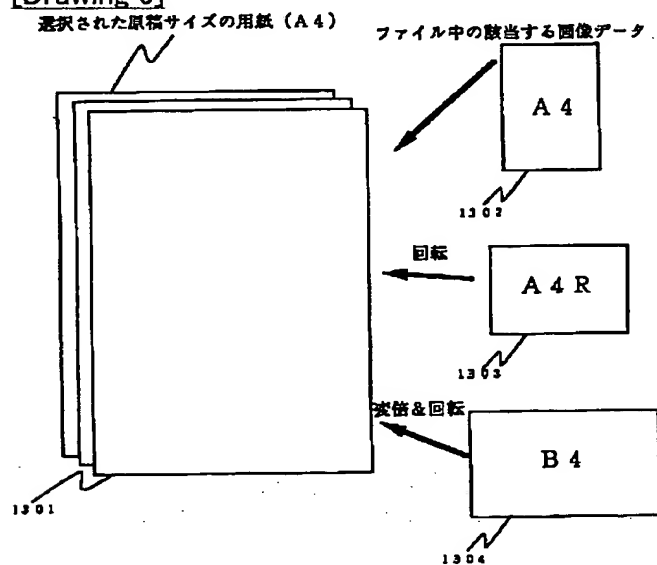
[Drawing 6]





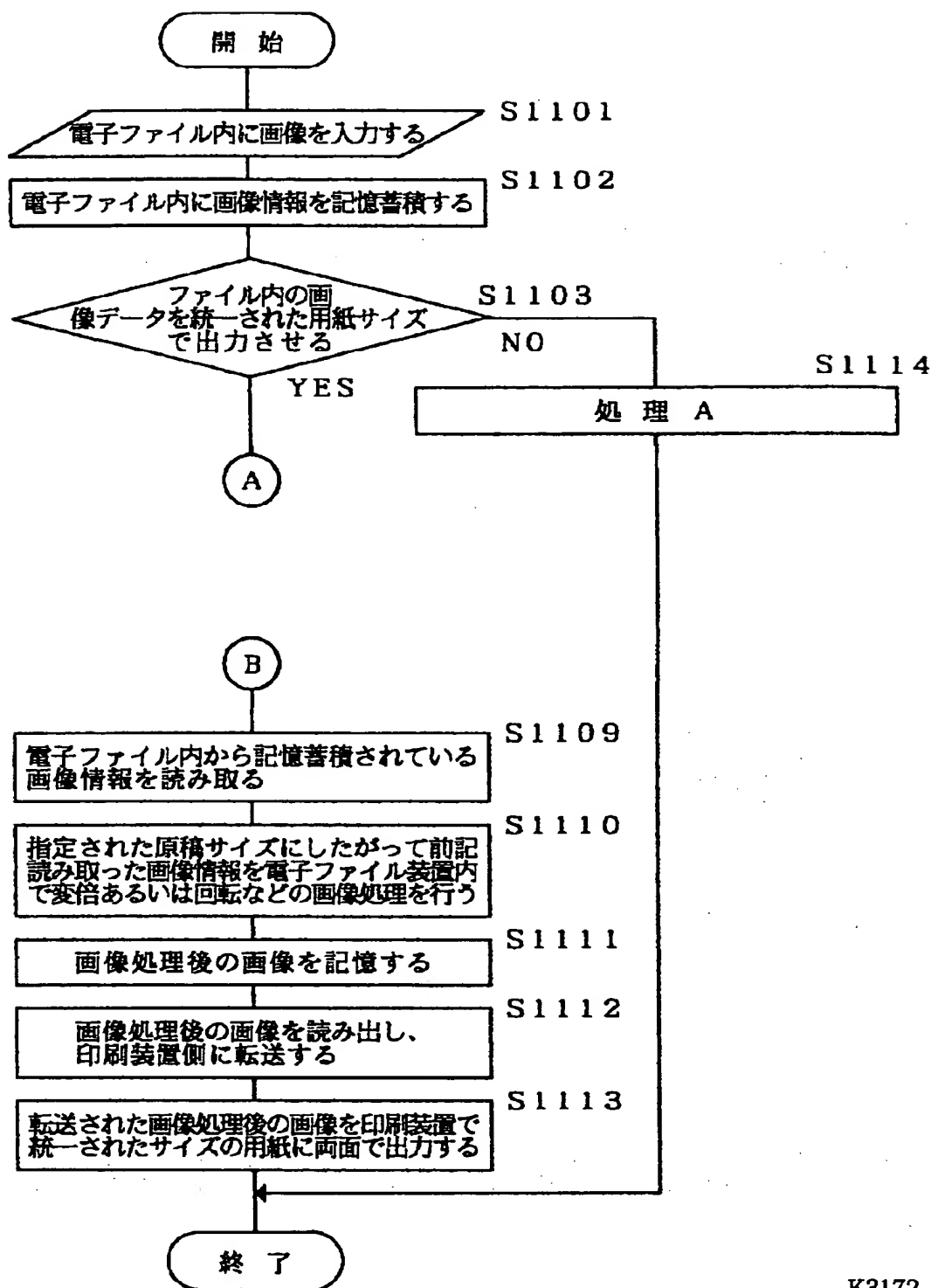
K3172

[Drawing 9]



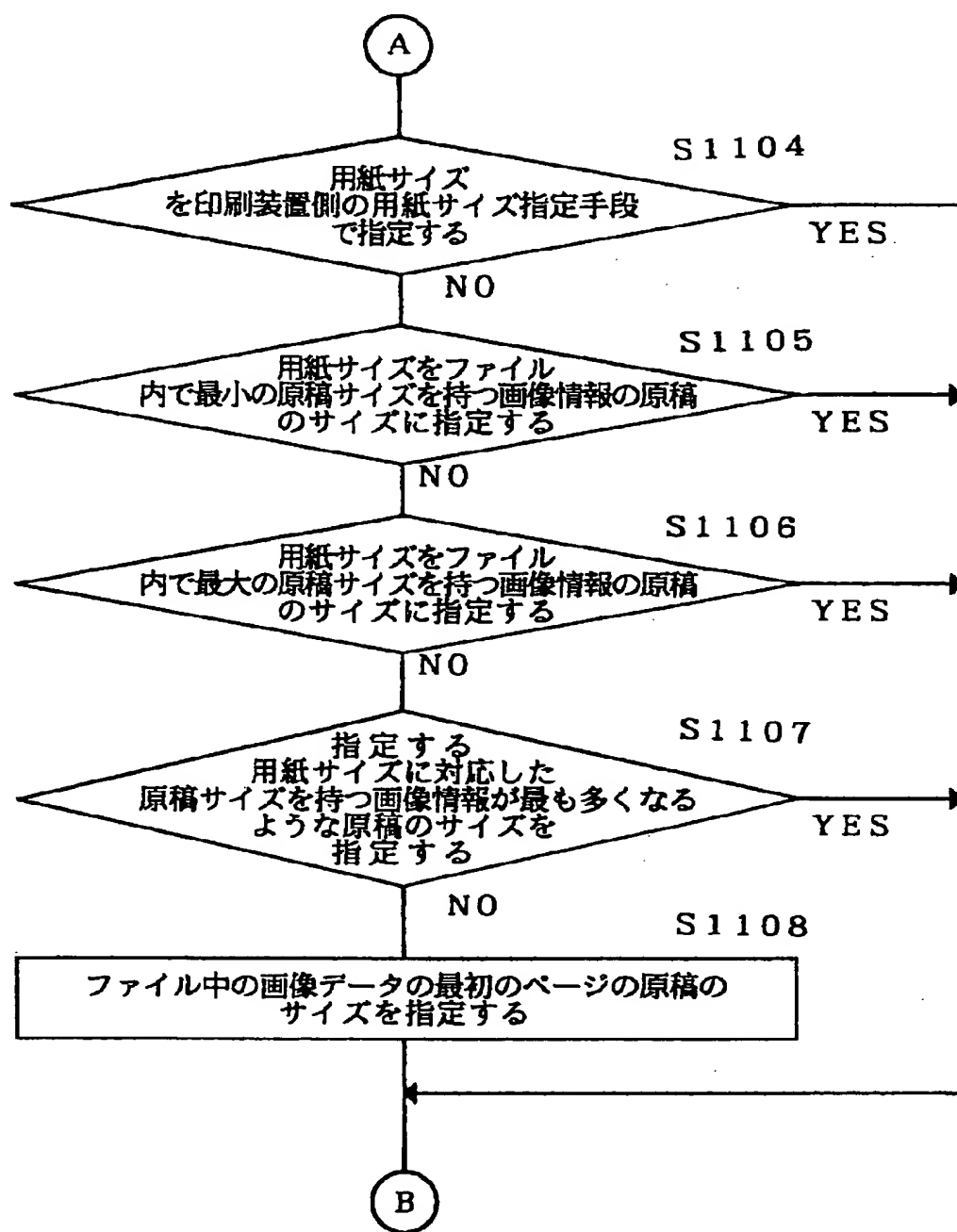
K3172

[Drawing 7]



K3172

[Drawing 8]



K3172

[Translation done.]

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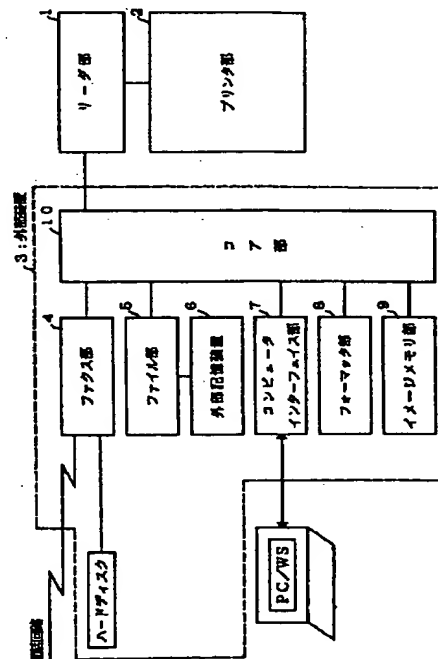
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(54) 【発明の名称】 画像入出力装置

(57) 【要約】

【目的】 様々なサイズの画像データが混在しているようなファイルを出力する場合に、画像の欠落や紙の無駄づかいをなくし、かつファイル整理を容易にするという観点から最適な用紙サイズによって画像出力を行うことができる画像入出力装置を提供することを目的とする。

【構成】 出力する画像ファイルの画像属性情報に基づいて、出力する画像に適宜変倍や回転等の処理を行い、これを統一した用紙サイズで出力することにより、出力が要求されている全ての画像データについて、最適な統一用紙サイズに片面または両面で出力させることを可能とした。



## 【特許請求の範囲】

【請求項 1】 画像を入力する画像入力手段と、この画像入力手段により入力した画像情報を画像ファイルとして画像属性情報と共に記憶する第 1 の記憶手段と、この第 1 の記憶手段に記憶蓄積された画像ファイルから画像情報あるいは画像属性情報を読み取る第 1 の読み取り手段と、画像データを変倍する変倍手段と、この変倍手段からの変倍画像データを回転する回転手段と、この回転手段からの回転画像データを順次記憶する第 2 の記憶手段と、この第 2 の記憶手段の記憶データを読み取る第 2 の読み取り手段と、この第 2 の読み取り手段からのデータをシート状の出力媒体に可視出力する画像出力手段とを有する画像入出力装置において、  
前記変倍手段は、前記画像属性情報出力手段の出力する画像属性情報を受信する画像属性情報受信手段と、この画像属性情報受信手段で受信した画像属性情報にしたがって画像データを所定の原稿サイズに変倍する画像変倍手段とを有し、前記画像出力手段は、画像データを両面で出力媒体に出力する両面出力手段を有することを特徴とする画像入出力装置。

【請求項 2】 請求項 1 において、  
前記画像入力手段は、両面原稿を両面原稿であるという両面情報と共に両面で入力することを特徴とする画像入出力装置。

【請求項 3】 請求項 2 において、  
前記第 1 の記憶手段は、画像情報を画像ファイルとし、前記両面情報を前記画像属性情報として、共に記憶することを特徴とする画像入出力装置。

【請求項 4】 請求項 1 において、  
前記第 1 の記憶手段は、画像情報を画像ファイルとして記憶する際に、その画像ファイル全体の原稿枚数の情報を前記画像属性情報として共に記憶することを特徴とする画像入出力装置。

【請求項 5】 請求項 1 において、  
前記第 1 の記憶手段は、画像情報を画像ファイルとして記憶する際に、その画像情報の方向と原稿の向きの情報を前記画像属性情報として共に記憶することを特徴とする画像入出力装置。

【請求項 6】 画像を入力する画像入力手段と、この画像入力手段により入力した画像情報を画像ファイルとして画像属性情報と共に記憶する第 1 の記憶手段と、この第 1 の記憶手段に記憶蓄積された画像ファイルから画像情報あるいは画像属性情報を読み取る第 1 の読み取り手段と、画像データを変倍する変倍手段と、この変倍手段からの変倍画像データを回転する回転手段と、この回転手段からの回転画像データを順次記憶する第 2 の記憶手段と、この第 2 の記憶手段の記憶データを読み取る第 2 の読み取り手段と、この第 2 の読み取り手段からのデータをシート状の出力媒体に可視出力する画像出力手段とを有する画像入出力装置において、

前記変倍手段は、前記画像属性情報出力手段の出力する画像属性情報を受信する画像属性情報受信手段と、この画像属性情報受信手段で受信した画像属性情報にしたがって画像データを所定の原稿サイズに変倍する画像変倍手段とを有することを特徴とする画像入出力装置。

【請求項 7】 請求項 1 または 6 において、  
前記変倍手段は、原稿サイズ指定手段によって指定された所定の原稿サイズに変倍することを特徴とする画像入出力装置。

10 【請求項 8】 請求項 1 または 6 において、  
前記変倍手段は、前記第 1 の読み取り手段で読み取った画像属性情報をもとにして、該当する画像データ中で最小の原稿サイズに合わせて全ての画像データを変倍することを特徴とする画像入出力装置。

【請求項 9】 請求項 1 または 6 において、  
前記変倍手段は、前記第 1 の読み取り手段で読み取った画像属性情報をもとにして、該当する画像データ中で最大の原稿サイズに合わせて全ての画像データを変倍することを特徴とする画像入出力装置。

20 【請求項 10】 請求項 1 または 6 において、  
前記変倍手段は、前記第 1 の読み取り手段で読み取った画像属性情報をもとにして、該当する画像データ中でその原稿サイズが最も多いものを選択して、その原稿サイズに合わせて全ての画像データを変倍することを特徴とする画像入出力装置。

【請求項 11】 請求項 1 または 6 において、  
前記変倍手段は、前記第 1 の読み取り手段で読み取った画像属性情報をもとにして、該当する画像データ中で 1 番最初に出力される画像データの原稿サイズを選択して、その原稿サイズに合わせて全ての画像データを変倍することを特徴とする画像入出力装置。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】 本発明は、例えば画像電子ファイル装置、デジタル複写機、ファクシミリ、プリンタなどにおける画像入出力装置に関するものである。

## 【0002】

【従来の技術】 近年、複写機のスキャナ部分およびプリンタ部分をファクシミリ装置や PDL プリンタ装置、さらには電子ファイル装置として使用する複数の機能を有する複合デジタル複写機が実用化されている。

40 【0003】 そして、従来は、前記のような複合デジタル複写機を電子ファイル装置として使用する場合であって、様々な原稿サイズの画像データが混在するファイルを出力させるような場合においては、その画像データの投入の時点で原稿サイズを固定して、固定した用紙サイズで画像データを出力させるものや、反対に各原稿サイズを検出することにより、各々の原稿サイズに応じた用紙サイズを選択して画像データを出力させるようにしたもの

## 【0004】

【発明が解決しようとする課題】しかしながら、上述のような装置において、1つのファイル内に様々な原稿サイズの画像データが混在するような場合において、強制的に指定した用紙サイズで出力させるようにすると、場合によっては画像の欠落などが起こり、所望の出力が得られない場合があるうえ、無駄な余白を生じることにより、用紙の浪費につながるなどの問題点があった。

【0005】また、反対に各々の原稿サイズに応じた用紙サイズで出力させると、各出力用紙サイズが共通でないため整理しにくいという問題点が生じる。

【0006】本発明は、画像の欠落や紙の無駄づかいをなくし、かつファイル整理を容易にするという観点から最適な用紙サイズによって画像出力を行うことができる画像入出力装置を提供することを目的とする。

## 【0007】

【課題を解決するための手段】本発明は、出力する画像ファイルの画像属性情報に基づいて、出力する画像に適宜変倍や回転等の処理を行い、これを統一した用紙サイズで出力することにより、ファイル内に様々な原稿サイズの画像データが混在しているような場合においても、出力が要求されている全ての画像データについて、最適な統一用紙サイズに片面または両面で出力させることが可能となる。

【0008】これにより、記録装置における記録紙の先行給紙などでプリント時間の短縮が可能になり、また、用紙の浪費を最小限に抑え、ステイブルする際にも原稿が整然とした形で行うことができる。

## 【0009】

【実施例】図1は、本発明の一実施例を示す画像形成システムの構成を示すブロック図である。

【0010】図1において、リーダ部1は、原稿の画像を読み取り、画像データを出力する画像入力装置であり、プリンタ部2は、複数種類の記録紙カセットを有し、プリント命令により画像データを記録紙上に可視像として出力する画像出力装置である。

【0011】また、外部装置3は、リーダ部1と電氣的に接続されたものであり、各種の機能を有する。すなわち、この外部装置3には、ファクス部4、ファイル部5、またファイル部5と接続されている外部記憶装置6、コンピュータと接続するためのコンピュータインタフェース部7、コンピュータからの情報を可視像とするためのフォーマッタ部8、リーダ部1からの情報を蓄積したり、コンピュータから送られてきた情報を一時的に蓄積するためのイメージメモリ部9、および上記各機能を制御するコア部10等を備えている。

【0012】図2は、リーダ部1およびプリンタ部2の構成を示す断面図である。

【0013】まず、リーダ部1において、原稿給送装置101上に積載された原稿は、1枚ずつ順次原稿台ガラ

ス面102上に搬送される。そして、原稿がガラス面102の所定位置へ搬送されると、スキャナ部のランプ103が点灯し、かつスキャナユニット104が移動して原稿を露光走査する。原稿の反射光は、ミラー105、106、107、およびレンズ108を介してCCDイメージセンサ部109（以下、CCDという）に入力される。

【0014】次に、プリンタ部2に入力された画像信号は、露光制御部201にて変調された光信号に変換されて感光体202を照射する。この照射光によって感光体202上に作られた潜像は、現像器203によって現像される。上記現像像の先端とタイミングを合わせて転写積載部204、もしくは205より転写紙が搬送され、転写部206において、上記現像された像が転写される。

【0015】転写された像は、定着部207にて転写紙に定着された後、排紙部208より装置外部に排出される。排紙部208から出力された転写紙は、ソータ220でソート機能が働いている場合には、各ビンに排出され、またソート機能が働いていない場合には、ソータの最上位のビンに排出される。

【0016】また、順次読み込む画像を1枚の出力用紙の両面に出力する場合には、定着部207で定着された出力用紙を、一度、排紙部208まで搬送後、用紙の搬送向きを反転して搬送方向切り替え部材209を介して再給紙用被転写紙積載部210に搬送する。そして、次の原稿が準備されると、上記プロセスと同様にして原稿画像が読み取られるが、転写紙については再給紙用被転写紙積載部210より給紙されるので、結局、同一出力紙の表面、裏面に2枚の原稿画像を出力することができる。

【0017】次に、外部装置3は、リーダ1とケーブルで接続され、外部装置3内のコア部で信号の制御や各機能の制御を行う。

【0018】この外部装置3内には、ファクス送受信を行うファクス部4と、各種原稿情報を電気信号に変換し、光磁気ディスク（外部記憶装置6）に保存するファイル部5と、コンピュータからのコード情報をイメージ情報に展開するフォーマッタ部8と、コンピュータとのインターフェイスを行うコンピュータ・インターフェイス部7と、リーダ部1からの情報を蓄積したり、コンピュータから送られてきた情報を一時的に蓄積するためのイメージメモリ部9と、上記各機能を制御するコア部10等が設けられている。

【0019】図3は、上記リーダ部1の制御系の概要を示すブロック図である。

【0020】このリーダ部1は、CCD109の読取り信号に対してA/D変換、シェーディング補正を行うA/D・SH部110と、このA/D・SH部110からの画像データを入力して色検出や輪郭処理等の各種信号

処理を行う画像処理部111と、この画像処理部111からの画像データに基づくレーザ駆動信号を生成してプリンタ部2へ供給するレーザドライバ112とを有する。

【0021】また、リーダ部1には、上述した外部装置3との間で各種信号を入出力するインターフェイス部113を有し、このインターフェイス部113による外部装置3からの画像データを上記画像処理部111、レーザドライバ112を介してプリンタ部2に転送できるようになっている。

【0022】また、リーダ部1には、本システムに対して各種設定を行うための操作部115が設けられている。なお、操作部115の構成は、図5により後述する。

【0023】そして、このようなリーダ部1の制御は、CPU114がメモリ116に格納したプログラムに基づいて行う。また、メモリ116には、CPU114の制御プログラムの他、各種データの格納領域等が設けられている。

【0024】図4は、上記コア部10の制御系の概要を示すブロック図である。

【0025】図示のように、このコア部10には、上述したファクス部4、ファイル部5、コンピュータインターフェイス部7、フォーマッタ部8、イメージメモリ部9等を接続するセレクトの機能を含むインターフェイス部120と、入力したデータに関する変倍や回転等の各種処理を行うデータ処理部121と、各種データをリーダ部1との間で入出力するインターフェイス部122とを有する。

【0026】そして、このようなコア部10の制御は、CPU123がメモリ124に格納したプログラムに基づいて行う。また、メモリ124には、CPU123の制御プログラムの他、各種データの格納領域等が設けられている。

【0027】図5は、ファイル部5の構成を示すブロック図である。

【0028】このファイル部5は、コア部10との間でデータのやり取りを行うためのインターフェイス部130と、このファイル部5全体の制御を行うCPU131と、画像データの変倍と回転を行う変倍/回転回路132と、画像データの符号化と復号化を行うCODEC133と、これらのデータ処理等に用いられるメモリ134と、上記外部記憶装置6へのSCSIインタフェースを制御するSCSIコントローラ135とを有する。なお、以下の説明において、メモリ134は、個別にアクセス可能なメモリ部A~Dを有するものとする。

【0029】次に、本発明の特徴部分である画像ファイルの出力動作について説明する。

【0030】図6は、本実施例において、ファイル内に様々な原稿サイズの画像データが混在している場合に、

その全ての画像データに共通で適した用紙サイズを選択して両面で出力する様子を示す説明図である。

【0031】なお、ここでは、画像を入力する手段が上記外部記憶装置6にセットされる光磁気ディスクである場合を例に説明する。

【0032】まず、予め外部記憶装置6の光磁気ディスクには、例えばリーダ部1から入力された画像データが各々の画像データの詳細な画像属性データと共に記憶されているものとする。

10 【0033】この画像属性データとは、例えば主走査方向の画素数、副走査方向の画素数、主走査方向の解像度、副走査方向の解像度、サンプルあたりのビット数、原稿サイズ等である。

【0034】そして、ファイル部5のCPU131は、これらの画像属性データを外部記憶装置6と所定のアクセスを行うことにより、外部記憶装置6中の全ての画像データについて得ることが可能である。

【0035】また、CPU131は、出力が要求される全ての画像の画像属性データと、操作部115からコア部10を通して入力された用紙サイズ指定情報とに基づき、出力用紙サイズを選択する。

【0036】さらに、CPU131は、SCSIコントローラ135を介して外部記憶装置6から符号化された情報を受け取り、その符号化情報をメモリ134のメモリ部Cに転送する。そして、このメモリ部Cへの符号化情報の転送が終了すると、CPU131は、メモリ部Cと他のメモリ部DをCODEC133に接続する。これにより、CODEC133は、メモリ部Cから符号化情報を読み取り順次復号化した後、メモリ部Dに転送する。

【0037】次に、上記メモリ部Dと他のメモリ部Aを変倍/回転回路132に接続し、図示しないDMAコントローラによるDMA制御の下、メモリ部Dの内容を縮小、回転し、メモリ部Aの所定のエリアに変換された画像を転送する。

【0038】なお、このとき、CPU131は、外部記憶装置6から読み取った画像データに付随する画像属性データ（画素数、解像度、原稿サイズ、原稿の向き等）から、選択された用紙サイズに合わせて縮小された各画像のX方向画素数とY方向画素数への変換と、必要に応じて回転処理を行うように変倍/回転回路132に指示するものとする。

【0039】また、回転処理は、原稿の長手方向と短手方向が変換前と変換後で逆になるような場合において行うようにすれば良い。

【0040】このようにして、CPU131の制御により、画像がメモリ部A上の所定のエリアに配置される。

【0041】次に、2枚目以降の画像についても、変換後にメモリ部A上で転送されるエリアが異なる以外は、全く同様にして処理されて配置される。

【0042】以下同様にして、所定の画像枚数をメモリ部Aに全て同じ原稿サイズになるように画像変換して配置する。

【0043】次に、CPU131は、コア部10のCPU123と通信を行い、メモリ部Aからコア部10を通り、プリンタ部2に画像を両面でプリント出力するための設定を行う。以下、上述した両面出力動作により、画像のプリント出力を行う。

【0044】次に、図7、図8は、本実施例の全体動作を示すフローチャートである。以下、この図7、図8と

上記図6とを用いて説明する。

【0045】まず、最初にS1101において、外部記憶装置6に画像を取り込むためにファイル部5に、一連の画像データをファイルとしてリーダ部1で入力する。

【0046】次に、S1102において、S1101で取り込んだファイル内容である画像データ1202を外部記憶装置6に記憶する。

【0047】そして、S1103では、S1102で外部記憶装置6に記憶したファイル中の原稿サイズがそれぞれ異なる画像データ1202、1203を、統一された

用紙サイズ1201で出力させるかどうかをユーザに決定させる。

【0048】もし、統一された用紙サイズで出力させることをユーザが望まないのであれば、S1114において、その他の処理Aを実行する。なお、この処理Aとは、ファイル中の画像データをそれぞれの用紙サイズで出力するような処理である。

【0049】また、統一された用紙サイズで出力させることをユーザが望む場合には、S1104、S1105、S1106、S1107で、それぞれ用紙サイズを統一させる上でどのような用紙サイズを選択させるのか、ユーザに判定を求める。

【0050】ここで、S1104は、ユーザが操作部115の用紙サイズ指定手段で用紙サイズを選択するかどうかという判定であり、S1105は、出力が要求されるファイル中の画像データで最小の原稿サイズを選択するかどうかという判定である。また、S1106は、出力が要求されるファイル中の画像データで最大の原稿サイズを選択するかどうかという判定であり、S1107は、選択する用紙サイズに対応した原稿サイズを持つ画像データの数がファイル中最大となるような用紙サイズを選択するかどうかという判定である。

【0051】そして、以上のS1104～S1107の判定において、いずれか1つでも、その判定を問われている用紙サイズを選択する場合には、次にS1109の処理を行う。

【0052】また、S1104～S1107の判定において、いずれの用紙サイズをも選択しなかった場合には、S1108でファイル中の最初の画像データの用紙サイズを選択し、この後、S1109の処理を行う。

【0053】次に、S1109では、ファイル部5に接続されている外部記憶装置6からS1102で記憶されている画像データをファイル部5で読み取る。そして、S1110では、S1104～S1107で選択された用紙サイズ、あるいはS1108で指定された用紙サイズにしたがって、S1109で読み取った画像データに解像度変換、必要に応じて回転などの画像処理をファイル部5で施し、用紙サイズ1201に対応した画像データに変換する。

【0054】次に、S1111では、S1110で変換された画像をファイル部5のメモリに記憶する。そして、このS1111で記憶された変換後の画像は、S1112でファイル部5のメモリから読み出され、プリンタ部2に転送される。

【0055】プリンタ部2では、S1112で転送されてきた画像データを受信し、S1113でプリンタ部2で両面出力させる。

【0056】以上のようにして、サイズの異なる画像が混在したファイルであっても、各画像の変倍や回転を行い、最適な統一用紙サイズを選択して画像出力を行うことができるので、画像の欠落や紙の無駄づかいをなくし、かつファイル整理を容易にすることができる。

【0057】なお、以上の第1実施例では、画像の入力手段として光磁気ディスクを用いた場合について説明したが、それ以外の入力手段についても同様に適用することができる。

【0058】例えば、本発明の第2実施例として、リーダ部1から入力された画像が両面原稿を含むものである場合においても、この画像データを外部記憶装置6に記憶する際に、両面原稿であるという情報を画像属性情報に加えて、共に記憶する。

【0059】その後の処理は、上記第1実施例で述べたのとはほぼ同様であるが、その処理を行う上で両面原稿である画像データは、その画像属性情報を知ることによって常に判別できるので、その処理中においては、両面原稿である画像データは常に両面として扱われ、ファイルが統一された用紙サイズで出力される際にも、プリンタ部2で得られる出力は、リーダ部1から両面で入力された両面原稿については、その表面と裏面の関係はくずれることなく対応している。

【0060】また、以上の第2実施例では、リーダ部1で両面原稿の画像データが入力される場合について述べたが、出力が望まれるファイルの内容である原稿の枚数が奇数枚で、なおかつ原稿を逆順に出力するような場合においても、その旨を画像属性情報に加えて記憶することにより、同様に処理することが可能である。

【0061】すなわち、画像ファイルとして画像データを外部記憶装置6に記憶する際に、画像ファイル全体の原稿枚数を画像属性情報と共に記憶する。

【0062】そして、その後の処理は、上記第1実施例



で述べたのとほぼ同様であるが、CPU131がコア部10のCPU123と通信を行い、メモリ部Aからコア部10を通り、プリンタ部2に画像をプリントする設定を行う際に、原稿枚数の情報を転送することで原稿が奇数枚の場合でも対応できる。

【0063】また、以上の各実施例においては、画像データを両面出力する場合について説明したが、本発明の第4実施例として、片面出力するようにしてもよい。

【0064】図9は、この場合の様子を示す説明図である。上記第1実施例の場合と同様にして、ファイル内に様々な原稿サイズの画像データ1302、1303、1304が混在している場合に、その全ての画像データに共通で適した用紙サイズの用紙1301を選択し、各画像データ1302、1303、1304を用紙1301の表面に片面出力する。

【0065】なお、全体の動作は、上記図7、図8で示したフローチャートに添うものであり、説明は省略する。

【0066】上記第1実施例では、両面に出力することで、用紙を節約できる利点があり、この第4実施例では、片面に出力することで、片面ファイルを望むユーザに都合の良いシステムとなる。

【0067】なお、以上のような両面出力と片面出力とを選択できるようにすることも可能であり、さらに、上記第2実施例で説明した両面原稿についても、ユーザの好みで出力方法を設定できるようにすることも可能である。たとえば、読み取った原稿が片面原稿であれば、ファイルの出力時に片面で出力し、両面原稿を含む場合には、その原稿については両面出力する。

【0068】さらに、以上で説明した各実施例は、本発明の一実施例を示すものであり、本発明は、これらに限定されるものではない。すなわち、本発明に関わる画像出力方法における上述の各機能の具体的方法については、上述した方法以外にも種々採用し得るものである。

【0069】

【発明の効果】以上説明したように、本発明によれば、ファイル内に様々な原稿サイズの画像データが混在して

いても、出力が要求される全ての画像データを要求される統一された用紙サイズで出力させることが可能となり、その結果、先行給紙などを行うことにより、プリント時間が短くなったり、また、用紙の浪費を最小限に抑え、ステイブルする際にも原稿が整然とした形で行うことができるという効果がある。

【図面の簡単な説明】

【図1】本発明の一実施例における複合装置の制御系を示すブロック図である。

【図2】上記実施例における複合装置の構造を示す断面図である。

【図3】上記実施例におけるリーダ部の制御系を示すブロック図である。

【図4】上記実施例におけるコア部の制御系を示すブロック図である。

【図5】上記実施例におけるファイル部の制御系を示すブロック図である。

【図6】本発明の第1実施例における画像出力の様子を示す説明図である。

【図7】上記第1実施例における動作を示すフローチャートである。

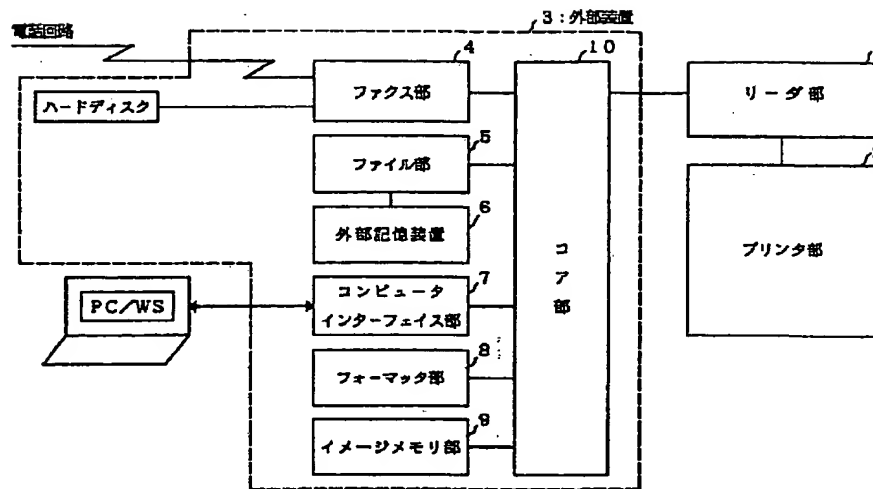
【図8】上記第1実施例における動作を示すフローチャートである。

【図9】本発明の第4実施例における画像出力の様子を示す説明図である。

【符号の説明】

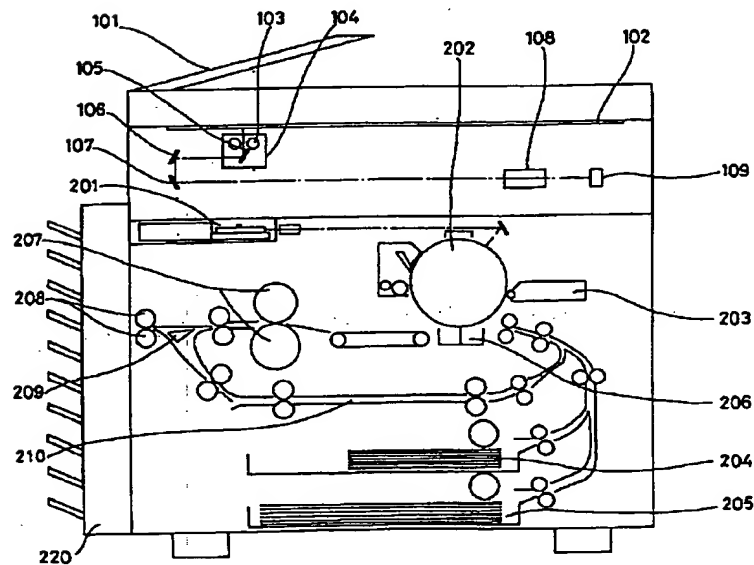
- 1…リーダ部、
- 2…プリンタ部、
- 3…外部装置、
- 4…ファクス部、
- 5…ファイル部、
- 6…外部記憶装置、
- 7…コンピュータインタフェイス部、
- 8…フォーマッタ部、
- 9…イメージメモリ部、
- 10…コア部。

【図1】



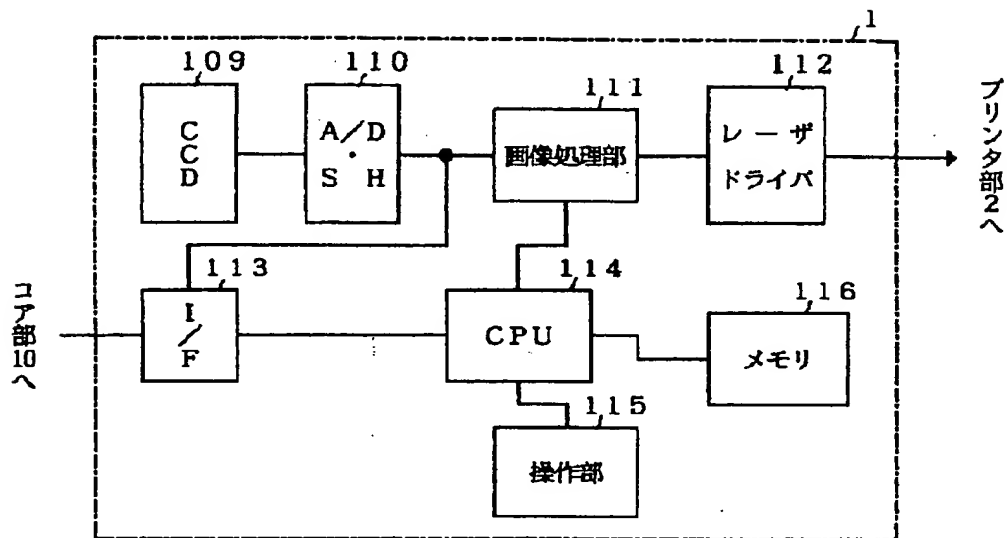
K3172

【図2】

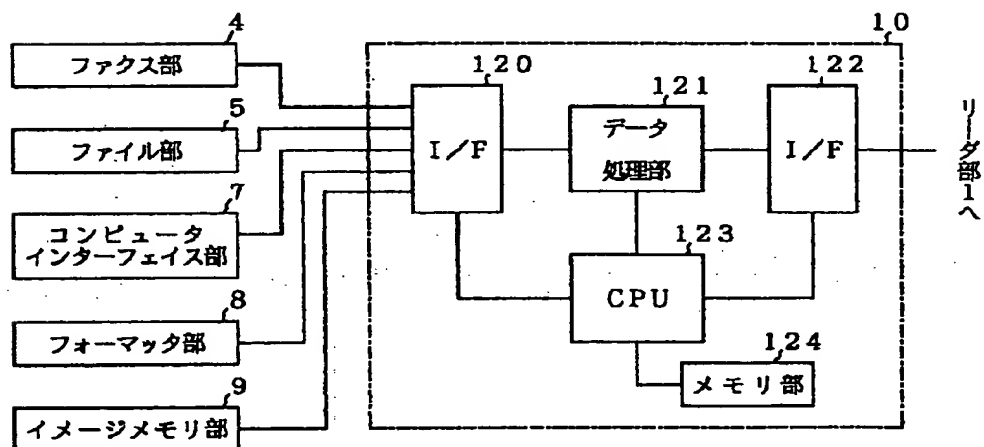


K3172

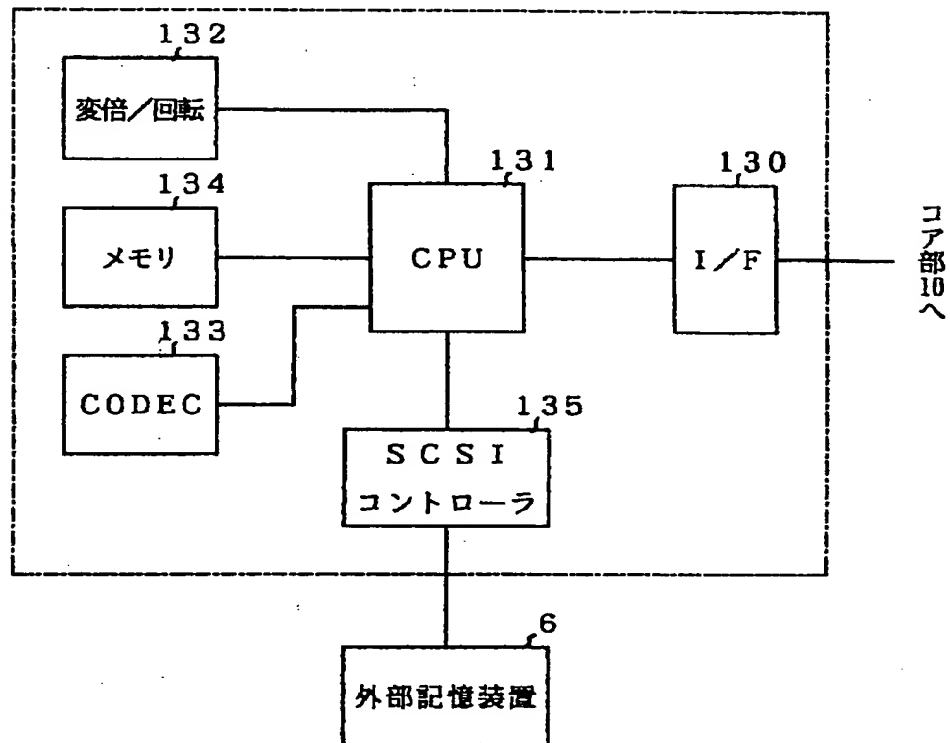
【図3】



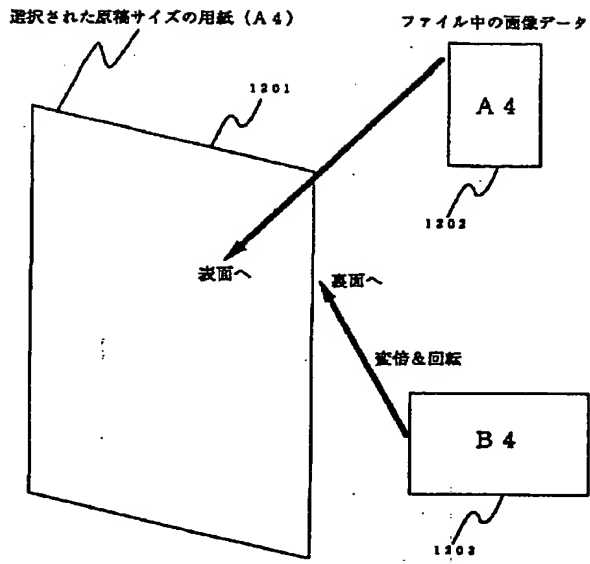
【図4】



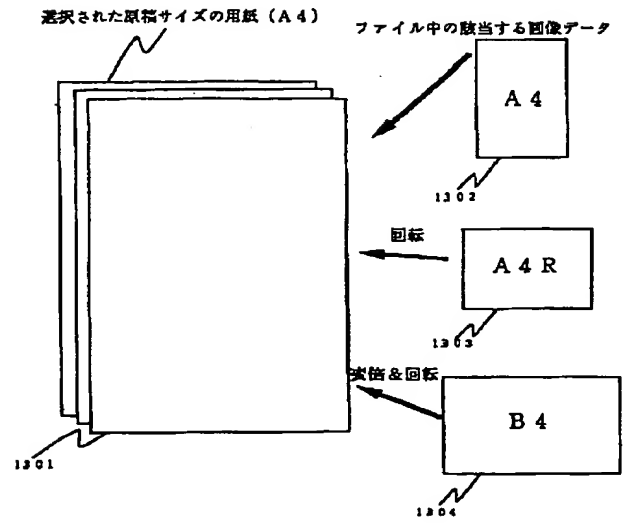
【図5】



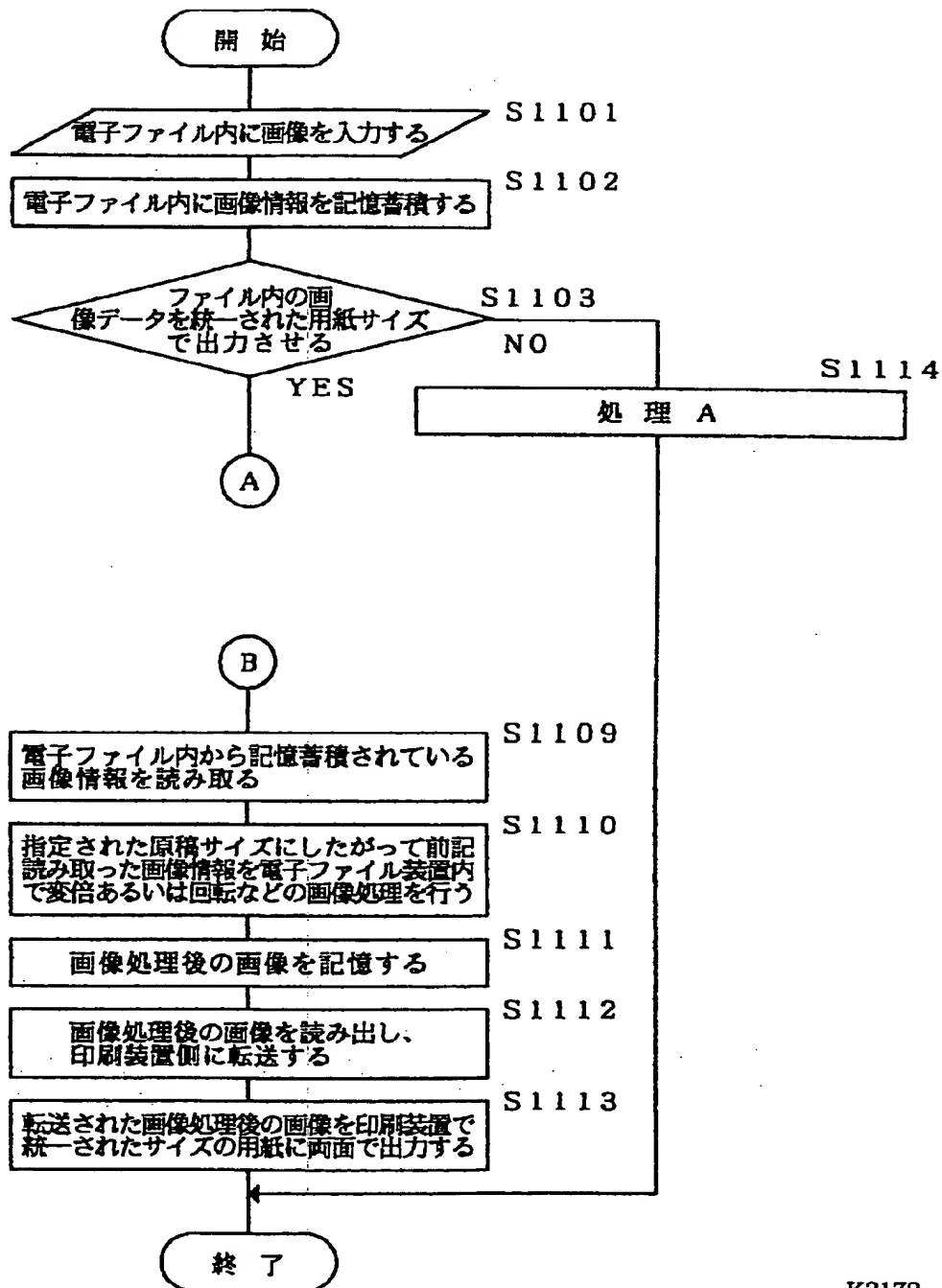
【図 6】



【図 9】



【図7】



【図8】

